



SUMMARY

Routine maintenance is necessary to avoid boiler downtime and unnecessary expenses. On a regular basis, visually inspect all parts of the boiler system, analyze combustion and test the boiler feedwater.

14 Steps to Prepare Your Boiler for Winter

Routine maintenance will help you avoid boiler downtime and unnecessary expenses, which can be particularly detrimental during the winter months. Now is the time to inspect and clean your boiler. Follow your equipment manufacturer's recommendations along with these 10 steps:

- 1 Inspect the fuel source** – No matter if the boiler is burning natural gas, propane or oil, the supply and pressures must be verified, and piping/valves checked for any leakage. If the fuel is heavy oil, the temperature of the oil needs to be verified to assure proper viscosity for atomization.
- 2 Inspect the fireside** – A dirty fireside leads to a decrease in efficiency. Open the fireside and check the boiler tubes and furnace area for any deposits of soot and non-combustible material and clean as necessary. Also, check the fireside gaskets for wear and brittleness, replacing these seals as needed.
- 3 Check the refractory** – All boilers will incur some cracking due to normal expansion/contraction. Inspect the boiler refractory for signs of excessive cracking (greater than 1/8") or erosion. Carefully prepare and build up these areas according to the instructions from the manufacturer and/or refractory supplier.
- 4 Inspect the waterside** – All water-level controls and related inspection points should be opened and cleaned. Remove all man-way and hand-hole plates from the boiler and the inspection plugs from the water column tees and crosses. Also remove the float assemblies from the water column(s), and thoroughly wash all the waterside surfaces. Rod out the equalization lines and/or other related piping assuring complete openness, replacing worn-out gaskets as necessary.
- 5 Inspect the burner** – While the boiler is open, inspect the burner components. All moving parts should be free and non-binding. Inspect the shutter, burner baffle, damper, oil nozzle(s), and diffuser to ensure all parts are in proper working order, are properly aligned per the manufacturer's instructions, and are not over heated, distorted or cracked.
- 6 Inspect the controls** – Any controls used to monitor the water level of the boiler should be checked for proper mounting position, wiring, switch integrity, alignment, and mechanical operation after reinstalling on the boiler. Before starting the boiler, inspect all the operating controls for both mechanical and electrical integrity paying special attention to visual signs of overheated wiring or switches. All of these operating controls can be found on the boiler's electrical wiring diagram, and will be electrically tied into the boiler's Burner Management System (BMS), also known as a Programmer or Flame safeguard. If the wiring within the control is found to be defective or compromised, replace the control in its entirety. Do not attempt to rewire the internal control or replace its switches.
- 7 Close all openings** – Make sure all of the boiler's doors, man-ways and hand-holes are properly closed and gasketed, the boiler's blowdown valves are closed, and the safety valve(s) are properly installed and vented.
- 8 Open the boiler's valves** – This includes the boiler's header valves, piping drains and vent valve.
- 9 Test the pumps and valves** – Test operate the pumps and valves to ensure proper operation.
- 10 Warm up your boiler** – When the boiler is started from a cold status, be sure to bring the pressure up slowly to allow joints and metals to heat up evenly and reduce expansion stress.

- 11** **Switch to Automatic Operation** – Do this once the boiler has reached the desired operating pressure.
- 12** **Analyze combustion** – Perform a full combustion analysis. This step will help to optimize performance, verify component operation, lessen maintenance requirements, and minimize fuel requirements thereby lowering operational expense.
- 13** **Water treatment** – Test and treat the boiler water per the guidelines provided in the Installation and Operations Manual, or it is always a good idea to consult with a water treatment expert for a specific treatment program for your particular situation. Newly filled boilers and freshly started deaerators may require additional testing until the water chemistry reaches a “normal” balance. This will typically take a few days.
- 14** **Monitor your boiler** – Closely monitor the boiler for the first few days after start-up to check for leaks and any additional maintenance items that may occur as the boiler and systems expand and reach operational temperatures.

When conducting boiler maintenance, take precautions. Always disconnect the main power supply and follow proper lockout/tagout procedures before cleaning, checking and repairing your system. If your personnel have not been properly trained in safe boiler procedures, consult a qualified service maintenance company for assistance.

To read more boiler room tips or learn about boiler room products that can increase efficiency and decrease costs, visit cleaverbrooks.com.